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EXAMINER

WU, JIANYE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/698,055	<b>Applicant(s)</b> HEBSGAARD ET AL.	
	<b>Examiner</b> Jianye Wu	<b>Art Unit</b> 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 6/2/08.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-6,8-11,13-17,19-22 and 24-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6,8-11,13-17,19-22 and 24-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                      |                                                                   |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____                                                          | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Response to Amendments/Arguments*

1. Applicant's arguments regarding 35 USC 103 rejection have been considered but are moot in view of the new ground(s) of rejection due to the fact that all independent claims have been amended.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. **Claims 1-6, 8-11,13-17,19-22 and 24-26** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

All independent Claims 1, 13, and 24 recite 2 new limitations:

“after a specified period has elapsed since receiving a negative-acknowledge signal, requesting an explicit acknowledgment from the receiver or deleting a group of stored MAC layer signals;

receiving the negative-acknowledge the identifies a packet data unit (PDU) and deleting a group of packet data units transmitted prior to the identified PDU in the negative-acknowledge;”.

The order of these 2 limitations should be reversed because "Receiving the negative-acknowledge" must occur first before the timer can be started.

For examination on the merits, the claims will be interpreted as the best understood.

All dependent claims are rejected because they depend from independent claims.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. **Claims 1-6, 8-11,13-17,19-22 and 24-26** are rejected under 35 U.S.C. 103(a) as being unpatentable over Radhakrishnan et al. (US Patent Number 7,000,021 B1, hereinafter **Radhakrishnan**) in view of Rauschmayer (US 20030128681 A1).

For **claims 1 and 13**, Radhakrishnan discloses a method in claim 1 and a wireless transceiver in claim 13 for transmitting and receiving wireless communication

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signals (a point to multipoint wireless communication system, lines 10-11 of Col. 1), comprising:

a receiver portion (receiver, line 51 of Col. 4) that receives acknowledge signals transmitted by another device over a wireless medium (lines 18-19, Col. 2); and

a transmitter portion (sender, line 51 of Col. 4), wherein the transmitter portion: forms MAC layer signals according to a DOCSIS protocol (lines 39-40 of Col. 1);

adds, at the MAC layer, an ARQ (ARQ in its MAC layer, line 59 of Col. 1) header containing a sequence number (1308 of FIG. 13) to each of the MAC layer signals;

transmits the MAC layer signals (line 17 of Col. 2, 506 of FIG. 5);

stores the MAC layer signals (Store packet in buffer, 506 of FIG. 5; or lines 52-54 of Col. 4);

receiving the negative-acknowledge the identifies a packet data unit (PDU) (602 of FIG. 6, "Read sequence number of first packet number not received") and deleting a group of packet data units transmitted prior to the identified PDU in the negative-acknowledge (622 of FIG. 6, "Flush packets that have exceeded retry limit");

after a specified period has elapsed since receiving an acknowledge signal (702 of FIG. 7, "Expiration of request acknowledgement timer" and col. 8, line 5-7), requesting an explicit acknowledgment from the receiver or deleting a group of stored MAC layer signals (714 of FIG. 7, "flush all outstanding packets").

Radhakrishnan is silent on the timer is started after receiving a negative acknowledge signal.

In the same field of endeavor, Rauschmayer teaches the acknowledge signal is a negative acknowledge signal with missing sequence number ("Negative Acknowledgment" ('NAK') message. The NAK message includes the missing Sequence Number(s)", [0025]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Radhakrishnan with Rauschmayer to use a negative-acknowledge signal to reduce the number of acknowledge signal while ensuring all data being received properly.

As to **claim 2**, Radhakrishnan and Rauschmayer disclose the method of claim 1 wherein the step of adding an ARQ header includes adding a sequence number (sequence number, line 9-10 of Col 2; or 1408 of FIG. 5) in the ARQ header.

As to **claim 3**, Radhakrishnan and Rauschmayer disclose the method of claim 2 further including storing transmitted frames until a negative acknowledge signal (acknowledge packet, lines 52-54 of Col. 4) is received (lines 62-67, Col. 4).

As to **claim 4**, Radhakrishnan and Rauschmayer disclose the method of claim 2 further including receiving a non-acknowledge signal from a receiver, the non-acknowledge signal including a previously transmitted sequence number (lines 52-54, Col. 4; or FIG. 6).

As to **claim 5**, Radhakrishnan and Rauschmayer disclose the method of claim 4 further including deleting a group of stored MAC layer signals, the group of stored MAC layer signals being a function of a value of the previously transmitted sequence number (lines 52-54 of Col. 4; or 606 of FIG. 6).

As to **claim 6**, Radhakrishnan and Rauschmayer disclose the method of claim 5 wherein the group comprises all MAC layer signals transmitted prior to the MAC layer signal containing the previously transmitted sequence number (lines 54-60, Col. 4).

As to **claim 8**, Radhakrishnan and Rauschmayer disclose the method of claim 4 further including retrieving a stored MAC layer signal that corresponds with the previously transmitted sequence number received in the acknowledge signal (lines 60-61, Col. 4; or 902 of FIG. 9).

As to **claim 9**, Radhakrishnan and Rauschmayer disclose the method of claim 8 further including transmitting the stored MAC layer signal that corresponds with the previously transmitted sequence number received in the acknowledge signal (lines 60-61, Col. 4; or 618 of FIG. 6).

As to **claim 10**, Radhakrishnan and Rauschmayer disclose the method of claim 9 further comprising deleting (flushing) all stored MAC layer signals that were transmitted prior to the stored MAC layer signal that corresponds with the previously transmitted sequence number received in the acknowledge signal (606 of FIG. 6; or lines 52-54, Col. 4).

As to **claim 11**, Radhakrishnan and Rauschmayer disclose the method of claim 4 further including determining (confirms, line 56, Col. 4) whether the previously transmitted sequence number identified in the acknowledge signal is corresponds to a sequence number for a stored MAC layer (lines 56-61, Col. 4).

For **claim 13**, Radhakrishnan discloses a wireless transceiver (a point to multipoint wireless communication system, lines 10-11 of Col. 1) for transmitting and receiving wireless communication signals, comprising:

a receiver portion (receiver, line 51 of Col. 4) that receives acknowledge signals transmitted by another device over a wireless medium (lines 18-19, Col. 2); and

a transmitter portion (sender, line 51 of Col. 4), wherein the transmitter portion: forms MAC layer signals according to a DOCSIS protocol (lines 39-40 of Col. 1);

adds, at the MAC layer, an ARQ (ARQ in its MAC layer, line 59 of Col. 1) header containing a sequence number (1308 of FIG. 13) to each of the MAC layer signals;

transmits the MAC layer signals (line 17 of Col. 2, 506 of FIG. 5);

stores the MAC layer a negative-acknowledge signals (Store packet in buffer, 506 of FIG. 5; or lines 52-54 of Col. 4);

deletes at least one stored MAC layer signal (lines 52-54, Col. 4; or 606 of FIG. 6).

Radhakrishnan is silent on received acknowledge signal is a negative acknowledge signal and deleting a group of packet data units transmitted prior to receiving the negative-acknowledge; and

In the same field of endeavor, Rauschmayer teaches the acknowledge signal is a negative acknowledge signal with missing sequence number ("Negative Acknowledgment" ('NAK') message. The NAK message includes the missing Sequence Number(s)", [0025]).



Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Radhakrishnan with Rauschmayer to use a negative-acknowledge signal to ensure all data being received properly.

As to **claim 14**, Radhakrishnan and Rauschmayer disclose the wireless transceiver of claim 13 wherein the wireless transceiver stores transmitted frames until a negative acknowledge signal (*missing packet*, line 64 of Col. 4) is received (lines 62-67, Col. 4).

As to **claim 15**, Radhakrishnan and Rauschmayer disclose the wireless transceiver of claim 13 wherein the wireless transceiver receives and responds to an acknowledge signal from a receiver (*acknowledge packet*, line 57 of Col. 4), the acknowledge signal including a previously transmitted sequence number (FIG. 6; or lines 56-61 of Col. 4).

As to **claim 16**, Radhakrishnan and Rauschmayer disclose the wireless transceiver of claim 15 wherein the wireless transceiver deletes a group of stored MAC layer signals, the group of stored MAC layer signals being a function of a value of the previously transmitted sequence number (lines 52-54 of Col. 4).

As to **claim 17**, Radhakrishnan and Rauschmayer disclose the wireless transceiver of claim 16 wherein the group comprises all MAC layer signals transmitted prior to the MAC layer signal containing the previously transmitted sequence number (lines 52-54 of Col. 4).

As to **claim 19**, Radhakrishnan and Rauschmayer disclose the wireless transceiver of claim 16 wherein the wireless transceiver retrieves a stored MAC layer

signal that corresponds with the previously transmitted sequence number received in the acknowledge signal (lines 52-54 of Col. 4).

As to **claim 20**, Radhakrishnan and Rauschmayer disclose the wireless transceiver of claim 19 wherein the wireless transceiver transmits the stored MAC layer signal that corresponds with the previously transmitted sequence number received in the acknowledge signal (lines 56-61 of Col. 4).

As to **claim 21**, Radhakrishnan and Rauschmayer disclose the wireless transceiver of claim 20 wherein the wireless transceiver deletes (flushes) all stored MAC layer signals that were transmitted prior to the stored MAC layer signal that corresponds with the previously transmitted sequence number received in the acknowledge signal (606 of FIG. 6; or lines 52-54, Col. 4).

As to **claim 22**, Radhakrishnan and Rauschmayer disclose the wireless transceiver of claim 16 wherein the wireless transceiver determines whether the previously transmitted sequence number identified in the acknowledge signal is corresponds to a sequence number for a stored MAC layer signal (lines 52-54 of Col. 4).

For **claim 24**, Radhakrishnan discloses the fixed wireless device (line 2 of Col. 1), comprising:

means for communicating over a wireless physical layer (line 10 of Col. 1);

means for communicating over a DOCSIS MAC layer (line 64 of Col. 1); and

means for embedding an ARQ protocol in said DOCSIS MAC layer (lines 64-65 of Col. 1);

means for deleting a group of stored MAC layer signals after a specified period has elapsed since receiving the negative-acknowledge signal (lines 25-27 of Col. 7; or 714 of FIG. 7).

Radhakrishnan is silent on received acknowledge signal is a negative acknowledge signal and deleting a group of packet data units transmitted prior to receiving the negative-acknowledge; and

In the same field of endeavor, Rauschmayer teaches the acknowledge signal is a negative acknowledge signal with missing sequence number ("Negative Acknowledgment" ('NAK') message. The NAK message includes the missing Sequence Number(s)", [0025]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Radhakrishnan with Rauschmayer to use a negative-acknowledge signal to ensure all data being received properly.

As to **claim 25**, Radhakrishnan and Rauschmayer disclose the fixed wireless device of claim 24 wherein the means for communicating includes a receiver portion that receives non-acknowledge signals transmitted by another device over a wireless medium and a transmitter portion, wherein the transmitter portion:

forms MAC layer signals according to a DOCSIS protocol (line 64 of Col. 1);  
adds, at the MAC layer, an ARQ header containing a sequence number (FIG. 13)  
to each of the MAC layer signals;  
transmits the MAC layer signals (line 17 of Col. 2; or 506 of FIG. 5);  
stores the MAC layer signals (lines 52-54 of Col. 4); and

deletes at least one stored MAC layer signal (606 of FIG. 7; or lines 52-54, Col. 4).

As to **claim 26**, Radhakrishnan and Rauschmayer disclose the fixed wireless device of claim 25 wherein the fixed wireless device stores transmitted frames until either a non-acknowledge signal is received or a timer expires (FIG. 7; or lines 56-58, Col. 4).

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jianye Wu whose telephone number is (571)270-1665. The examiner can normally be reached on Monday to Thursday, 8am to 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571)272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jianye Wu/

Examiner, Art Unit 2616

/Kevin C. Harper/

Primary Examiner, Art Unit 2616